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09/593,424	06/14/2000	Katsuya Irie	1081.1091/JDH	8248

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EXAMINER	
LEWIS, DAVID LEE	

ART UNIT	PAPER NUMBER
2673	18

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/593,424	IRIE ET AL.
	Examiner	Art Unit
	David L Lewis	2673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 December 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *16 and 17.*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 U.S.C. □ 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371□ of this title before the invention thereof by the applicant for patent. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

1. **Claims 1-3, 6, 7, 22, and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Kang. (6400347).**

2. **As in claims 1, Kang teaches of** a plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, **column 1 lines 39-45**, comprising: a drive unit, **figure 4 item 20,** which receives image signals of said different colors and drives pixels of each colors in the panel according to intensities of the image signals so as to have the pixels emit light with emission intensities corresponding to the intensities of the image signals, **column 4 lines 40-60**, while decreasing the drive frequency of the sustain discharge as the display load factor increases, **column 4 lines 40-60**, wherein said drive unit makes correction to change the intensity of one of the image signals of a predetermined color, **column 6 lines 25-30**, and drives all of the pixels in the panel according to the corrected intensity of the one image signal, **column 6 lines 25-30,** so that the ratio of the emission intensity of said fluorescent substance of each color during white display is roughly the same when said display load factor is low and high, **column 4 lines 40-45**, depending on a change of the display load factor, **column 4 lines 40-60, column 8 lines 5-10.** Wherein the drive frequency of the sustain pulses is decreased based on a

brightness (load factor) so that the color signal ratio is optimized for good white balance. The detecting means (column 6 lines 1-5) measures the brightness of each color signals R, G, B, and calculates the number of sustain pulses required to maintain good white balance (white display that is roughly the same given low or high brightness), and then proceeding to drive the display accordingly.

3. **Further, as found in claim 2 and 3** Kang teaches wherein the signal of green/blue is increased/decreased, compared with the varying load factor, Kang teaches adjusting for good white balance, **column 4 lines 40-50**, wherein said condition is accounted for to achieve good white balance. Wherein the drive frequency is decreased based on a brightness detecting means as independently corrected for each of R, G, B, colors, said brightness detecting means having a direct correspondence to load factor, the adjustments to the R, G, B color intensity each being independently increased or decreased according to load factor. **As in claim 6, Kang teaches of** a plasma display panel according to wherein said drive unit monitors a luminance value and/or display area value of each color to be supplied per predetermined unit time, **column 6 lines 1-10**, and corrects said emission intensity of green or blue on the condition that said display load factor increases when the accumulated total of said luminance value and/or display area value per predetermined unit time is higher, **column 6 lines 20-33**, and said display load factor decreases when the accumulated total of said luminance value and/or display area value per predetermined unit time is lower, **column 4 lines 40-60, column 7 lines 63-67, column 8 lines 1-21**. Wherein the brightness detecting means monitors the brightness of each color signal, R, G, and B whereby the color coordinates are measured every sub-field, and depending on the load factor or digital bit weight of the picture data, adjusts the R, G, B, color levels independently, to achieve superior display performance.

4. **As in claim 7, Kang teaches of** a plasma display panel which display colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharge, **column 1 lines 39-45,** comprising: a driver which repeats

a sustain discharge according to a drive frequency, **figure 4 item 20**, and drives pixels of the colors in the panel during a sustain discharge period which corresponds to intensities of input image signals of the colors, **column 4 lines 40-60**, wherein said driver limits a range of the drive frequency so that a chromaticity coordinate value during a white display is roughly constant regardless of a display load which depends on a luminance and/or a display area of a display image, **column 1 lines 39-45, column 4 lines 40-60**. Wherein the color coordinate of Kang is equivalent to the applicants chromaticity coordinate and said drive frequency is determined by the calculating the number of the sustain pulses of the color signal ratio required in good white balance, repeating according to the number of pulses.

5. **As in claim 22, Kang teaches of** a method of driving a plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, **column 1 lines 39-45,** comprising: receiving image signals of said different colors, **figure 4 item 20 (R, G, B)**; and driving pixels of each of the colors in the plasma display panel according to intensities of the received image signals so as to have the pixels emit light with emission intensities corresponding to the intensities of the received image signals, column 4 lines 40-60, while changing a drive frequency of sustain discharges according to a change of a display load factor, **column 4 lines 40-60**, changing intensities of one or more of the image signals of predetermined colors, **column 6 lines 47-55**, and driving all of the pixels in the plasma display panel according to the changed intensities of the one or more image signals, so that a ratio of the emission intensity of each of the different colors during a white display is substantially equal regardless of the display load factor, **column 8 lines 15-21**.

6. **As in claim 24, Kang teaches of** a method of driving a plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, **column 1 lines 39-45,** comprising: receiving image signals of said different colors, **figure 4 item 20 (R, G, B)**; and driving

pixels of each of the colors in the plasma display panel according to intensities of the received image signals so as to have the pixels emit light with emission intensities corresponding to the intensities of the received image signals, **column 4 lines 40-60,** while decreasing a drive frequency of sustain discharges as display load factor increases, **column 4 lines 40-60**, changing intensities of one or more of the image signals of predetermined colors, **column 6 lines 47-55**, and driving all of the pixels in the plasma display panel according to the changed intensities of the one or more image signals, so that a ratio of the emission intensity of said fluorescent substance of each colors during a white display is roughly the same when said display load factor is low and high depending on a change in the load factor, **column 8 lines 15-21**. Wherein based on the measurement of brightness/load and color coordinates a calculation of the number of sustain pulses of the color signal ratio required in good white balance is performed by independent adjusting the sustain period (frequency) of each color signal based on the erase pulse by the color. Said erase pulse reduces the frequency when the bit weight brightness load is increased to maintain good white balance, wherein minute white balance is achieved.

7. **Claims 1-3, 11, 12, and 21-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Kasahara et al. (6331843).**

8. **As in claims 1-3, 22 and 24, Kasahara et al. teaches of** a plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, **column 1 lines 5-10, column 20 liens 17-67 (color PDP)**, comprising: a drive unit, **figure 15-17,** which receives image signals of said different colors and drives pixels of each colors in the panel according to intensities of the image signals so as to have the pixels emit light with emission

intensities corresponding to the intensities of the image signals, **figure 15 item 2**, while decreasing the drive frequency of the sustain discharge as the display load factor increases, **column 3 lines 36-42, column 4 lines 30-41, column 23 lines 24-45**, wherein said drive unit makes correction to change the intensity of one of the image signals of a predetermined color, **column 23 lines 54-67**, and drives all of the pixels in the panel according to the corrected intensity of the one image signal, **column 24 lines 1-5**, so that the ratio of the emission intensity of said fluorescent substance of each color during white display is roughly the same when said display load factor is low and high depending on a change of the display load factor, **column 27 lines 5-15.** Wherein the weighting multiplier N is adjusted according to brightness, said brightness being an equivalent measure of display load, said optimum image in accordance with brightness and having no contour noise is equivalent to having good white balance. Said weighting multiplier N being set by a pulse width setting means which sets the drive pulse number directly affecting sustaining frequency in accordance with brightness. As the average level of said brightness or load increases, the frequency is decreased by adjusting N.

9. **As in claims 11 and 12, Kasahara teaches of** a plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, **column 1 lines 5-10, column 20 liens 17-67 (color PDP)**, comprising:; and a drive unit, which receives image signals of said different colors, **figure 15-17**, drives pixels of each of the colors in the plasma display panel according to intensities of the image signals so as to have the pixels emit light

with emission intensities corresponding to the intensities of the image signals and changes the drive frequency of sustain discharges according to the estimated display load factor, **column 3 lines 36-42, column 4 lines 30-41, column 23 lines 24-45**, and changing an intensity of one of the image signals of a predetermined color, **column 20 lines 51-67, column 21 lines 1-19,** and driving all of the pixels in the panel according to the corrected intensity of the one image signal, so that a ratio of the emission intensity of each of the different colors during white display is substantially equal regardless of the display load factor, wherein the load factor changes**, column 27 lines 5-15**, said detector to estimate a display load factor by detecting one of a power consumption of the plasma display panel and a drive frequency of sustain discharges of the plasma display panel, **figure 16 item 54**. Wherein the weighting multiplier N is adjusted according to brightness, said brightness being an equivalent measure of display load, said optimum image in accordance with brightness and having no contour noise is equivalent to having good white balance. Said weighting multiplier N being set by a pulse width setting means which sets the drive pulse number directly affecting sustaining frequency in accordance with brightness. As the average level of said brightness or load increases, the frequency is decreased by adjusting N.

10. **As in claims 21 and 23, Kasahara et al. teaches of** a plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges comprising; a driver frequency detection unit to detect a drive frequency, **figure 11 item 6 and 36**, and adjust output values of a

gamma table in a gamma conversion process, according to the detected drive frequency, **figure 11 item 10**, so that a ratio of an emission intensity of each of the different colors during a white display is substantially equal regardless of the display load factor, **figure 11 items 30 and 34, column 4 lines 30-60, column 21 lines 12-19 and 44-60**. Wherein the gamma conversion process of item 10 is driven according to the clock frequency within the video signal separated into R,G,B and HD/VD portions inputted to the timing pulse generator 6 and frequency detector 36. Therefore the gamma conversion process proceeds according to the detected frequency of the HD/VD, wherein item 6 provides timing signals to all components based on the input video signal, detected at item 6 and 36. The gamma corrected input determines the correct ratio of an emission intensity of each of the different colors during white display regardless of load factor. Wherein not only is the irrelevant subfield number varied but the brightness is adjusted in accordance with the total drive pulse number in each pixel to provide optimum screen display in bright places, which is equivalent to a proper ratio during white display. Said drive pulse number having a direct relation to frequency.

Claim Rejections - 35 U.S.C. □ 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. **Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kang (6400347 B1) in view of Kasahara et al. (6331843).**

12. **As in claims 11 and 12, Kang teaches of** a plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, **column 1 lines 39-45,** comprising:; and a drive unit, which receives image signals of said different colors, **figure 4 item 20**, drives pixels of each of the colors in the plasma display panel according to intensities of the image signals so as to have the pixels emit light with emission intensities corresponding to the intensities of the image signals and changes the drive frequency of sustain discharges according to the estimated display load factor, **column 4 lines 40-59**, and changing an intensity of one of the image signals of a predetermined color, and driving all of the pixels in the panel according to the corrected intensity of the one image signal, so that a ratio of the emission intensity of each of the different colors during white display is substantially equal regardless of the display load factor, **column 4 lines 40-60, column 8 lines 5-10,** wherein the load factor changes, **column 2 lines 12-41**. **However Kang does not explicitly teach of** said detector to estimate a display load factor by detecting one of a power consumption of the plasma display panel and a drive frequency of sustain discharges of the plasma display panel. **Kasahara et al. teaches of** said detector to estimate a display load factor by detecting one of a power consumption of the plasma display panel and a drive frequency of sustain discharges of the plasma display panel, column 4 lines 4-7, column 21 lines 1-19, column 26 lines 34-

60, **figure 16 items 26, 28, 36, and 54**. Wherein item 36 detects power consumption and item 36 detects frequency. Both Kang and Kasahara et al. teach of plasma display system wherein the scanning sustaining input is adjusted according to display brightness. Kang implies a detecting means but does not illustrate it structurally. Kasahara provides what Kang is silent on, the motivation to combine being the fact that they teach of like systems achieving a like objective, color balance. Therefore it would have been obvious to the skilled artisan at the time of the invention to combine the detecting means of Kasahara with the adjusting means of Kasahara et al. because Kasahara teaches what Kang implies but fails to distinguish to achieve the same goal of adjusting the scanning sustain pulse to effect good display balance.

13. **Claims 8-10, 13, 14, 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kang (6400347 B1).**

14. **As in claims 8 and 9, Kang teaches of** the plasma display as applied above to claim 7. However Kang is silent as to said language where said color temperature value or blackbody radiation is considered. Given the fact that Kang teaches of color coordinates which are equivalent to said chromaticity coordinates, said teaching obviously implies a chromaticity diagram indicating a variation of color temperature of an energy emitting black body radiation, because chromaticity coordinates, color temperature, and black body radiation are all interrelated within the concept of achieving good white balance in a color display system, and are all contained with a chromaticity

diagram representation of the color coordinates, required for an appropriate white balance ratio calculation. Therefore said color temperature value and blackbody radiation features of claims 8 and 9 would have been obvious to the skilled artisan at the time of the invention because Kang teaches of measuring the brightness and color coordinates and calculating the number of sustain pulses of the color signal ratio required in good white balance. **Further, as in claim 10**, said +/- 0.005uv value would have been an obvious design choice in view of the general teaching of color coordinates being used for a calculation, said calculation obviously being based on the chromaticity diagram required for the display system to achieve good white balance, because Kang particularly teaches of minute white balance, column 4 lines 20-25.

15. **As in clams 25 and 26**, Kang teaches of the invention as applied above to claim 24, however Kang is silent as to specifically increasing/decreasing a green or blue image intensity, while decreasing/increasing a blue or green images intensity. Because Kang teaches of independently adjusting each color according to the measured brightness and color coordinates, said limitation is obviously within the scope of Kang's teaching. Wherein based on the measurement of brightness/load and color coordinates a calculation of the number of sustain pulses of the color signal ratio required in good white balance is performed by independent adjusting the sustain period (frequency) of each color signal based on the erase pulse by the color. Said erase pulse reduces the frequency when the bit weight brightness load is increased to maintain good white balance, wherein minute white balance is achieved. **As in claims 13 and 14, Kang it**

silent as to said distinction of said respective levels, however Kang implicitly teaches of said distinction wherein as the display load factor increases from first to a second level, the red, blue, and green colors signals are adjusted to obtain good white color balance, **column 4 lines 40-60, column 6 lines 1-6.**

16. **Claims 4, 5, and 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kang (6400347) in view of Kasahara et al. (6331843) and Nagai (2002/0044105).**

17. **As in claims 4, 15 and 16**, Kang is silent on teaching of detecting power consumption and adjusting the green or blue color based on a load factor and power consumption change. **Nagai advances on the invention** taught by Kang and teaches of adjusting the color sustaining pluses based on power consumption, drive frequency or color temperature, **page 6 paragraph 78, page 9 paragraph 125, page 10 paragraphs 136, 141, 142**. Wherein Nagai identifies the signal with a circuit 4 or 19, determining signal type, and adjusts the drive sequence based on this information. **As in claims 5, 17 and 18**, Nagai detects the drive frequency of the sustain discharges of the plasma display panel and adjusts the emission intensity, page 6 paragraph 79, wherein the identification circuit reads the signal period information and adjusts the display accordingly. **As in claims 19 and 20,** Nagai detects a luminance value and/or a display area value of each color to be supplied per predetermined unit time, and adjusts the

emission intensity, page 6 paragraph 79, wherein adjustment is made based on the counted number of horizontal sync signals.

Response to Arguments

18. Applicant's arguments with respect to claims filed on 12/29/2003 have been considered but are moot in view of the new ground(s) of rejection. See Kang in view of Kasahara and Nagai rejection above. **A new interpretation of Kasahara** et al. has been given wherein the fact that the number of subfields is varied according to brightness is irrelevant to the rejection, wherein the number of sustaining pulses is also varied according to brightness. Kang also anticipates the Applicants invention as shown above.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. 6052101.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David L. Lewis** whose telephone number is **(703) 306-3026**. The examiner can normally be reached on MT and THF from 8 to 5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala, can be reached on (703) 305-4938. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231
or faxed to:
(703) 872-9314 (for Technology Center 2600 only)
Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

BIPIN SHALWALA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600